

A new species of mite, *Fusoherecia lawrencei*, from an artificial tree-hole (Acarina: Glycyphagidae)

by

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Studies of arthropods inhabiting tree holes, conducted at the Oak Ridge National Laboratory, Oak Ridge, Tennessee, required the development of methods for the artificial establishment and maintenance of arthropod communities in tree holes (Auerbach, 1958). One procedure involved the creation of tree holes by cutting or drilling cavities in trunks of trees. Subsequent sampling showed that the arthropod communities which developed in these cavities resembled those which develop in natural ones. A new species of *Fusoherecia* was found in samples from such an artificial tree hole in the trunk of a yellow poplar, *Liriodendron tulipifera*, three years after the original cavity was created. The species did not appear in subsequent samples, and after three additional years the cavity had become closed by growth of bark.

Fusoherecia was erected by Vitzthum (1931) for a distinctive species, *F. incredibilis*, from "Südsumatra". Vitzthum was uncertain as to the relationships of the species: "Von der hier zu beschreibenden art lässt sich nur sagen, dass sie neu ist und dass sie zu den *Acaridiae* gehort." Vitzthum (1940-1942) and Baker and Wharton (1952) placed the genus in the Glycyphagidae, where it is still retained. However, Zakhvatkin (1941) suggested a relationship with the subfamily Carpoglyphinae (*Carpoglyphus*, *Herecia* and *Hyadesia*).

Fusoherecia lawrencei new species, has the features of *F. incredibilis* Vitzthum. Although little additional information on relationships is gained from observations on *F. lawrencei*, the distinctive features of the genus can be asserted with more confidence. These characters would appear to be the dorsal articulations of legs I and II, the extensive sclerotization of both dorsal and ventral surfaces, and the articulated aedeagus of the male. Other free-living Acaridiae have large sclerotized areas, but *Fusoherecia* appears to be extreme. Some, such as *Glycyphagus* species, have legs I and II articulated almost laterally, but none have dorsal articulations. Another striking feature is the dimorphism of the anterior and posterior leg groups, legs I and II being much stouter than III and IV.

We respectfully dedicate this species to Dr R. F. Lawrence, the authority on South African Acarina.

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***Fusoherecia lawrencei* n.sp.**

Female.—Length of holotype, 331 μ ; width, 236 μ at level of coxae III, the widest point. Dorsum heavily sclerotized, slightly arched, uniformly punctate; small depressed areas laterally; integument slightly folded at levels of coxae II and III; coxae I and II on anterior lateral dorsal surface; dorsal setae fine, simple, subequal in length, about 50 μ long; 13 pairs of dorsal setae plus cervicals, arranged as figured. Venter bearing large, curved, punctate plates in area of articulations of legs I and II. Genitalia inverted-U-shaped, apparently covered by three plates separated by sutures, forming an inverted V; with two pairs of small (3 μ) genital discs on reduced lateral plates; with four pairs of short, fine, simple genital setae. Anal opening an elongate slit, with two pairs of fine, simple setae. One pair of lateral setae just anterior to coxae III. Gnathosoma small but normal in appearance; chelae toothed. Legs I and II stout; legs III and IV thin and long; setation as figured.

Male.—Resembles female except as follows: Length of allotype, 306 μ ; width, 147 μ . Posterior margin of opisthosoma more acuminate. Venter of body with three pairs of longer, slender, simple setae in sternal area. Tarsus I with only three lanceolate setae. With one pair of anal setae. Genitalia posterior, between coxae III and IV; aedeagus elongate, articulated at posterior margin, lying in a longitudinal genital groove; a single pair of small setae at anterior end of groove; with two pairs of small genital discs on plates flanking genital groove.

Nymphs.—Similar to adults, but lacking genitalia and with much less sclerotization dorsally and ventrally.

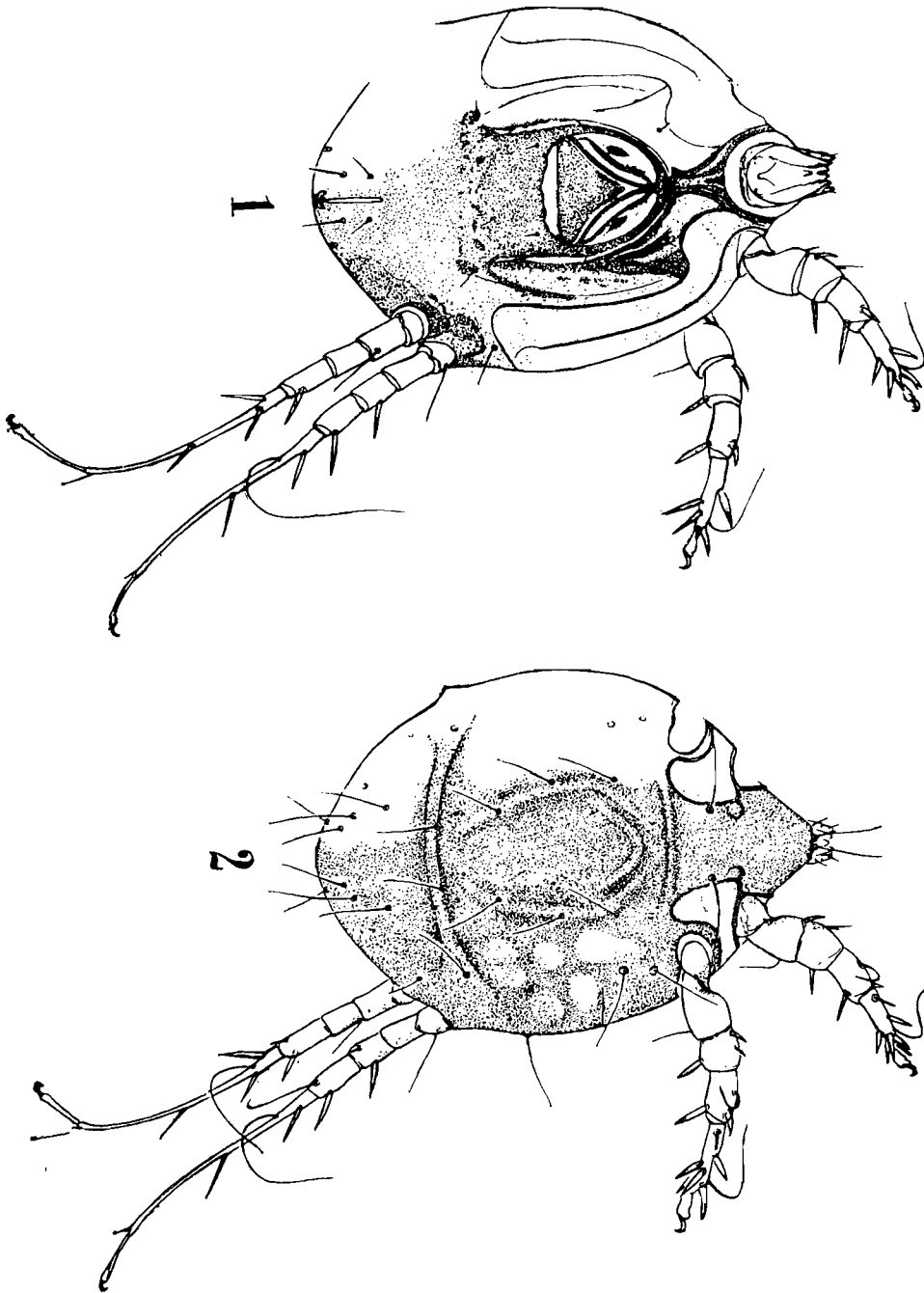
Holotype, female, U.S. National Museum No. 2896, eight paratype females, one allotype and five paratype males, and two nymphs, were collected from tree-hole, trunk of yellow poplar, *Liriodendron tulipifera*, Roane County, Tennessee, October 11, 1959, by D. A. Crossley.

Fusoherecia lawrencei new species, is a small, flat, yellowish-brown mite, pointed oval in outline, with finely punctate, heavily sclerotized integument. It is, in general, similar to *F.incredibilis* Vitzthum. The two species may be separated by the setation pattern of the body and legs, and in the shorter aedeagus of *F.lawrencei*.

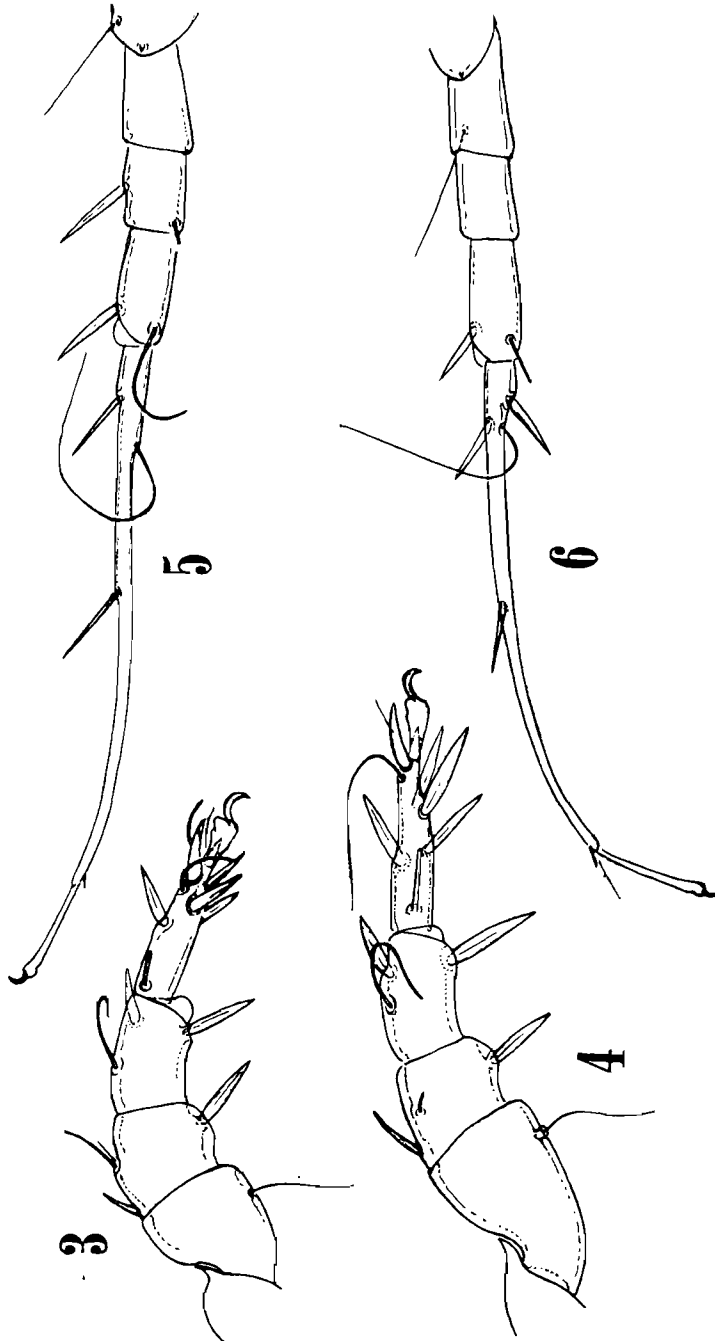
LITERATURE CITED

- AUERBACH, S. I. 1958. The soil ecosystem and radioactive waste disposal to the ground. *Ecology* 39: 522-529.
- BAKER, E. W. and G. W. WHARTON. 1952. An introduction to acarology. *MacMillan Co.* N.Y. 465 pp.
- VITZTHUM, H. G. 1931. Terrestrische Acarinen (Unter ausschluss der Oribatiden un Ixodiden) der Deutschen Limnologischen Sunda-Expedition. *Arch. f. Hydrobiol.* Suppl. vol. 9 "Tropische Binnengewässer, Band II": 59-134.
- VITZTHUM, H. G. 1940-1942. Acarina. *Bronns' Klassen und Ordnungen des Tierreiches*. 5, Sect. 4, Book 5: 1-1011.
- ZAKHVATKIN, A. A. 1941. Fauna of the U.S.S.R. Arachnoidea. Vol. 6, No. 1. Tyroglyphoidea (Acari). *Zool. Inst. Acad. Sci. U.S.S.R.*, New Series No. 28. Moscow, 1941. English translation, 1959, Ratcliffe, A., and A. M. Hughes. *Amer. Inst. biol. Sci.*, 573 pp.

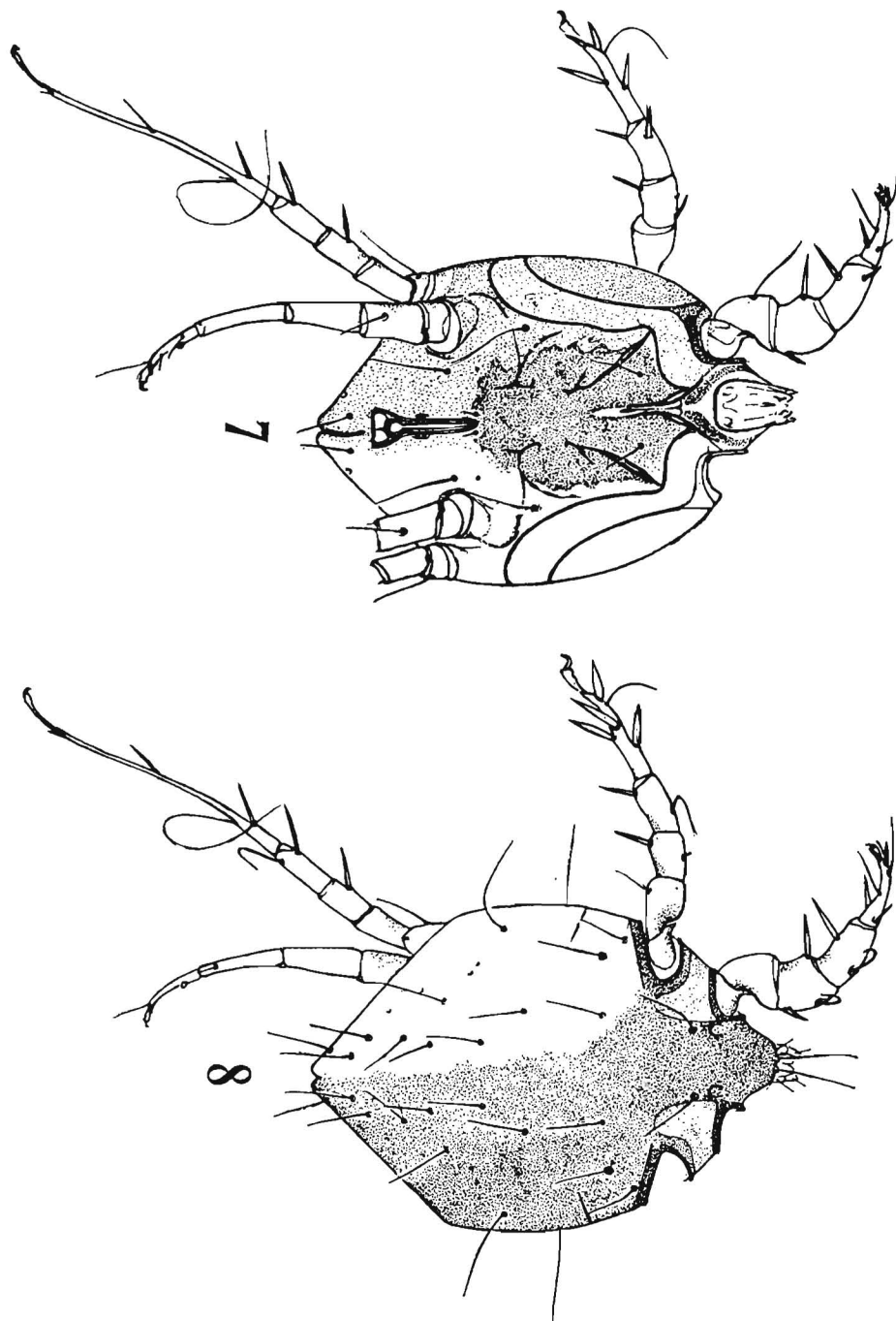
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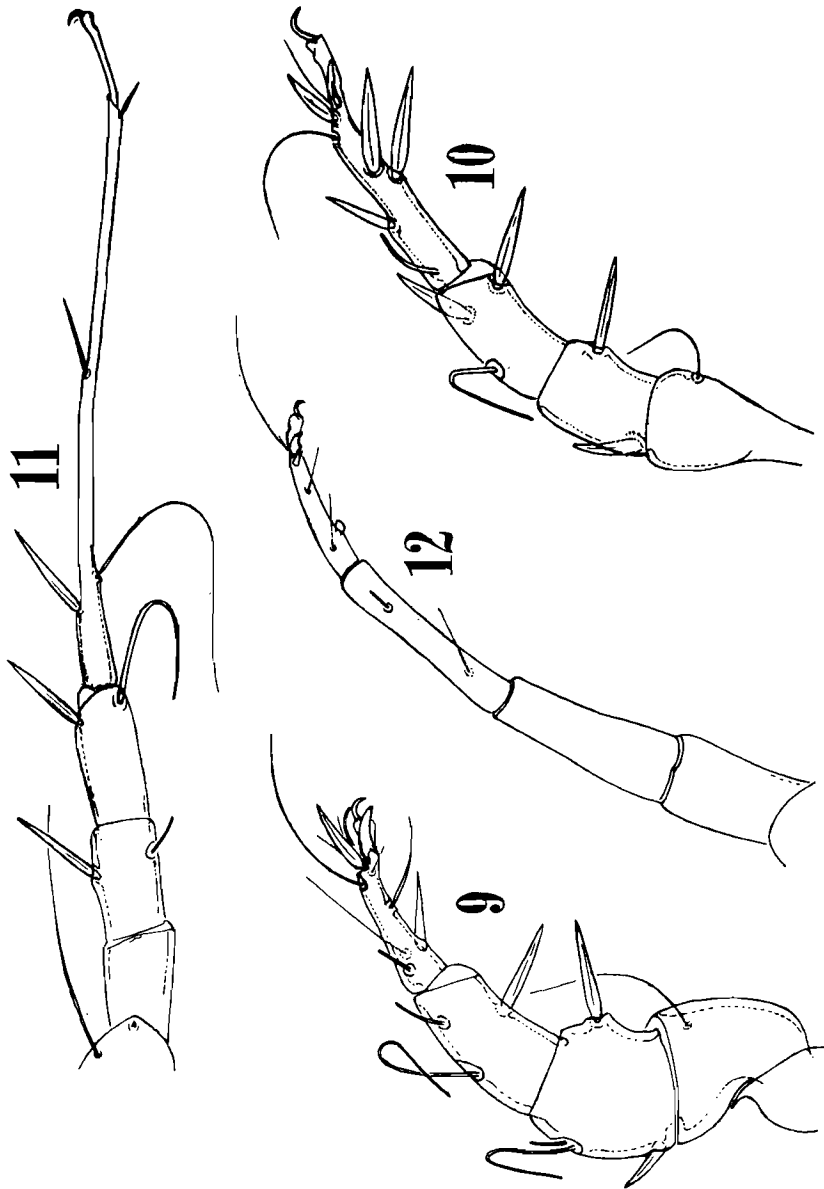
Figs. 1-2.—*Fusoherecia lawrencei* n.sp., female. (1) Venter; (2) dorsum.



Figs. 3-6.—*Fusoherecia lawrencei* n.sp., female. (3) Leg I; (4) leg II; (5) leg III; (6) leg IV.



Figs. 7-8.—*Fusoherecia lawrencei* n.sp., male. (7) Venter; (8) dorsum.



Figs. 9-12.—*Fusoherecia lawrencei* n.sp., male. (9) Leg I; (10) leg II; (11) leg III; (12) leg IV.